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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,754	08/13/2001	Ralph C. Taylor	00100010064	8666

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EXAMINER	
NGUYEN, HAU H	

ART UNIT	PAPER NUMBER
2676	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/928,754	Applicant(s) TAYLOR ET AL.	
	Examiner Hau H Nguyen	Art Unit 2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-19 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Arguments

1. Applicant's arguments filed November 17, 2003 with respect to the rejections of claims 1-19 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Kwok et al. (U.S. Patent No. 6,088,044).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-5, 9-13, 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Kwok et al. (U.S. Patent No. 6,088,044).

Referring to claims 1, 5, 13, and 16, Kwok et al. teach a method for processing input data in a data processor pipeline. The method includes steps of operating a main thread to store input data in an input buffer until the input buffer is full or the input data ends (col. 4, lines 1-6). As shown in FIG. 6A, the main thread then begins to accept state commands until a non-state command arrives (step 46). State commands in this context are a description of the overall state of the geometric processing operation, and may include a type of polygon, color(s), lighting direction, etc. The state commands are stored in a memory area that is accessible by the main thread and the child thread(s), while the vertex data is stored in one or more vertex data input buffers 16, 18. With reference to Fig. 6A, the main thread then begins to accept geometric input

data (step 52) and initiates filling a vertex buffer 16 (steps 54, 56, 58, 60). Once the vertex buffer is either full, or the filling terminated by the application, the vertex buffer is processed either by the main thread or by the child thread (steps 62, 64, 66, 68). In steps 70, 72, a determination is made if new state commands have arrived since the last vertex buffer was processed. The arrival of new state commands implies that geometric processing is to proceed using new parameters (e.g., the color, viewpoint, and/or lighting direction may have been changed). If no such commands have been received the main thread returns to step 52 to accept geometric input data. However, if unprocessed state commands exist, the main thread instead loops through all of the vertex buffers and waits for all of them to be emptied (steps 74, 76, 78, 80). This allows the processing of the pre-existing vertex data to be completed using the parameters embodied in the previous state commands. Once all of the vertex buffers are emptied the main thread transitions from step 80 back to step 52 to again begin accepting geometric input data (col. 10, lines 63-67, and col. 11, lines 1-36). Thus, once the vertex buffer is full, the main thread stops (prohibiting) adding new input data until previous state commands are completed.

Referring to claims 3, 9, and 15, as cited above, as shown in Fig. 6A, Kwok et al. teach if unprocessed state commands exist (M set of state data), the main thread instead loops through all of the vertex buffers and waits for all of them to be emptied (steps 74, 76, 78, 80). This allows the processing of the pre-existing vertex data to be completed using the parameters embodied in the previous state commands. Once all of the vertex buffers are emptied the main thread transitions from step 80 back to step 52 to again begin accepting geometric input data (col. 10, lines 63-67, and col. 11, lines 1-36). Thus, it is implied that a wait signal (or a flush signal) is

issued during the unprocessed state commands are being processed so that no input data is added until previous state commands are completed or no longer used.

In regard to claims 4 and 10, as cited above, Kwok et al. teach the state commands are stored in a memory area that is accessible by the main thread and the child thread(s), while the vertex data is stored in one or more vertex data input buffers 16, 18. State commands in this context are a description of the overall state of the geometric processing operation, and may include a type of polygon, color(s), lighting direction, etc (constant data).

Referring to claims 11 and 12, as shown in Fig. 4, Kwok et al. teach the graphics subsystem 110 operates under command from the application program to render the graphics data stored in the system memory 104 for display as an array of pixels in a display area of a display device 112 (col. 5, lines 27-30).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2, 7, 8, 14, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwok et al. (U.S. Patent No. 6,088,044).

Referring to claims 2, 7, 14, and 18, although Kwok et al. do not teach the maximum number of allowed states is two, it would have been a matter of design choice to modify the size of the buffer as taught by Kwok et al. to accept maximum number of two states since applicant has not disclosed that the maximum number of allowed states is two solves any stated problem or

is for any particular purpose and it appears that resizing the buffer as taught by Kwok et al. to allow two states would function equally well.

In regard to claims 8 and 19, as cited above, as shown in Fig. 6A, Kwok et al. teach if unprocessed state commands exist (M set of state data), the main thread instead loops through all of the vertex buffers and waits for all of them to be emptied (steps 74, 76, 78, 80). This allows the processing of the pre-existing vertex data to be completed using the parameters embodied in the previous state commands.

6. Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwok et al. (U.S. Patent No. 6,088,044) in view of admitted prior art.

Referring to claim 6 and 17, Kwok et al. teach a buffer for storing state data, and thus, Kwok et al. teach all the limitations of claims 6 and 17, except that the buffer is a ring buffer. However, as admitted to prior art, ring buffer are well known in the art (page 9 of the application).

Therefore, it would have been obvious to one skilled in the art to implement the buffer as taught by Kwok et al. as a ring buffer so that input data can be wrapped to the beginning of the buffer when its end is reached, thus saving time and increase the speed.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is: 703-305-4104. The examiner can normally be reached on MON-FRI from 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 703-308-6829.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D. C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

H. Nguyen

01/21/2004

Kee M. Tung
Primary Examiner